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Washington Highlights

A Government sponsored voluntary fuel and power conservation program is ready for public announcement. Robert E. Friedman, an official of the Interior Department, indicated the Federal program will call for a sharp reduction in pleasure driving and apportionment of oil to retailers.

Friedman, who is counsel of the Interior Department's oil and gas division, recently explained to the joint Congressional Economic Committee that a primary feature of the Administration campaign will be designed to educate the nation's motorists as a means of curtailing non-essential driving.

The campaign also will ask for voluntary allocation of oil to dealers by supplying companies, use of the more than 100 tankers, now idle and held by the Government, and some moderation of load limitations on the oil vessels. Under the plan, movements of tankers would be expedited by keeping the Illinois River ice free during the winter.

Coal and oil shortages are seen by Washington officials as creating an unbalance in the national economy, with a consequent danger of runaway inflation.

Rep. Edith Nourse Rogers, Republican of Mass. has introduced a resolution to ban exports of coal, gasoline and fuel oil until the end of the national scarcity of these commodities. The bill also would prohibit sale of tankers to foreign countries.

Commenting on the Administration's voluntary conservation program, Oscar L. Chapman, Under-Secretary of the Interior, said "while it is not believed that the over-all petroleum situation has become so acute as to require the exercise of drastic controls, should voluntary measures prove to be inadequate Government controls will be necessary."

The House, meantime, has unanimously adopted a resolution calling for a report on exports of petroleum, metals, motor equipment and vehicles, heavy and farm machinery and numerous other items. Max W. Ball, oil and gas division, Interior Department, and Walter S. Hallanan, National Petroleum Council, will be heard at opening hearings on the subject.

Developments in the tideland case in recent days were marked by the refusal of the Supreme Court to declare officially that the United States is the "owner" of submerged lands off the California coast. The High Court a few weeks ago decreed the Federal Government is "possessed of paramount rights" to these oil-rich lands.

The new ruling was on a petition by Robert E. Jordan for a change in the wording of the decree, which he held was necessary to prevent certain litigation on a tract of submerged land off Long Beach, which he claims rights to. Jordan asked that the decree be made to read that the United States is "the owner of and is possessed of paramount rights to the land."

Gov. Dwight H. Green of Illinois has attacked the court's decision granting the Government control over tidewater oil ground as a dangerous precedent. He said the decision "might be applied to effect the nationalization of all property useful or vital to the National defense or which might become the subject of international negotiations."

As a means of discouraging the stealing of Government motor fuel, the Army is giving considerable thought to dying gasoline a distinctive color for use by civilians in occupied areas. Under this plan, stolen gasoline could be more easily detected.

Arthur M. Hill of Charleston, W. Va., an executive of the Greyhound Bus Co., has been appointed chairman of the National Security Resources Board. The board is one of three agencies authorized in the National Security Act of 1947.

The board, in addition to the chairman, is made up of the Secretaries of the Treasury, Defense, Interior, Agriculture, Commerce and Labor Departments. Mr. Hill, drawn from "civil life" in accordance with the act, was chief of the transportation branch in the office of the Navy Secretary during the war.

● PUTTING WASTE GAS

Eleven 6-cylinder Clark "Big Angle" gas-engine-driven compressors totaling 13,200 B.H.P. in Eunice, N. M., compressor station of El Paso Natural Gas Company.

BIG JOBS are regular assignments for Clark "Big Angles". That's why El Paso Natural Gas Company picked these powerful, compact compressors for their big project of reclaiming, treating and pumping flare gas from Texas to California.

These are installed on that part of the line which gathers all the gas for main line operation. If any of these units in the first station on the line were to go down, the entire system would suffer.

Twenty-one Clark "Big Angle" Compressor units, totaling 23,200 B.H.P., are already in use for gas booster service on El Paso Company pipe line operations. Units totaling more than 24,000 additional B.H.P. are on order.

The reasons for El Paso Company's choice of Clark "Big Angles" for their No. 1 main line station can be found in Clark Catalog BA-17. Write for your copy—see why these units are the answer to the demand for utmost dependability and *more power, in less space, at lower over-all cost.*

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Review of Drilling Trends And Techniques

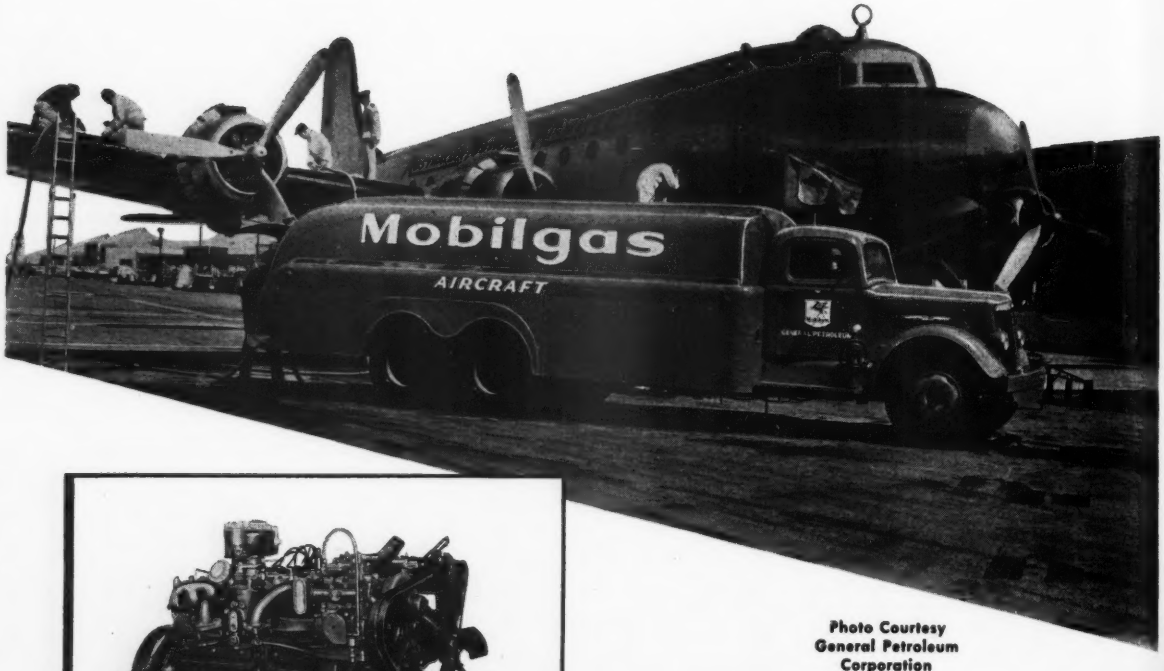
The evolution of drilling in recent years may be said to be trending in a number of directions. First, apart from technical considerations, there is a well defined movement on the part of the large corporations to contract their drilling operations, and it is actually and reliably reported that approximately sixty per cent of all drilling on the West Coast is at the present time being done by independent contractors. Regardless of the circumstances that have prompted this whipstocking of executive opinion, there is ample in economic theory to support its desirability and general soundness. It may be safely assumed that when any sizable organization takes such a drastic step as to disband its drilling department and dispose of its drilling facilities, the entire proposal in all its aspects has first been carefully debated, and the final conclusion has been arrived at only after a most searching analysis of all the factors involved.

It is commonly conceded that because of its highly competitive character, contract drilling is lower in cost than the institutional variety, and that seems to be a very reasonable assumption. To begin with, the contract operator has in practically every instance to secure his business on the basis of sealed bids. He must, thus, know pretty thoroughly the propective footage cost of any job on which he tenders a quotation, and even if the well is to be drilled in hitherto unexploited territory, he must be able to find some rational basis on which to make an offer. Just picking a figure out of the air is no longer done! The old gambling days are gone. The modern contract driller conducts his business in a businesslike way, and keeps meticulous record of all operating costs and expenditure, and, of course, taking into account the multiplicity of taxes with which he, like all other business men, is plagued. Graham Moody even contends semi-seriously that such items as the worry factor, time utilized in Monday morning quarter-backing, and time devoted by the involved personnel to the discussion of feminine charm, are proper charges against finding costs, and thus have a definite relation to drilling costs. In any case when he bids on a job now-a-days, the contractor realizes only too well that he is in competition with other equally methodical and equally anxious contract drillers, so his price has to be right.

That competitive spirit is one of the reasons for the growing popularity of the contract driller and his services. The institutional drilling department undoubtedly strives with due earnestness for results, but is naturally operating in comfortable security, and lacks the razor-keen incentive of the independent contractor. If, for example, the institutional estimator is a bit off in his calculations and the money runs out before the well is completed, it is usually fairly easy to wangle an additional appropriation. The drilling contractor would like to be able to do that too, but being in effect a tradesman rather than a member of the family, his chances are not quite so good, and his arithmetic, therefore, had better be accurate. The urgent necessity of getting contract work down to

Here an Eastman whipstock is being started in the hole. Directional drilling has been responsible for the development of helpful data in all phases and types of drilling, and was in turn made possible first by the invention of well surveying devices.

Keeping Ahead of Petroleum Transportation Needs for More than 45 Years



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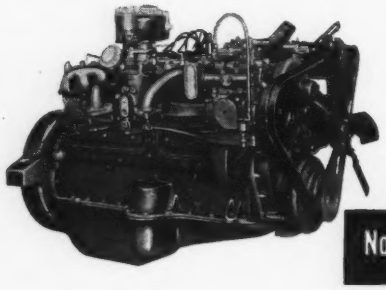

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reasonable operating cost at a reasonable profit, of course, makes it rather an inviting proposition for many large corporations.

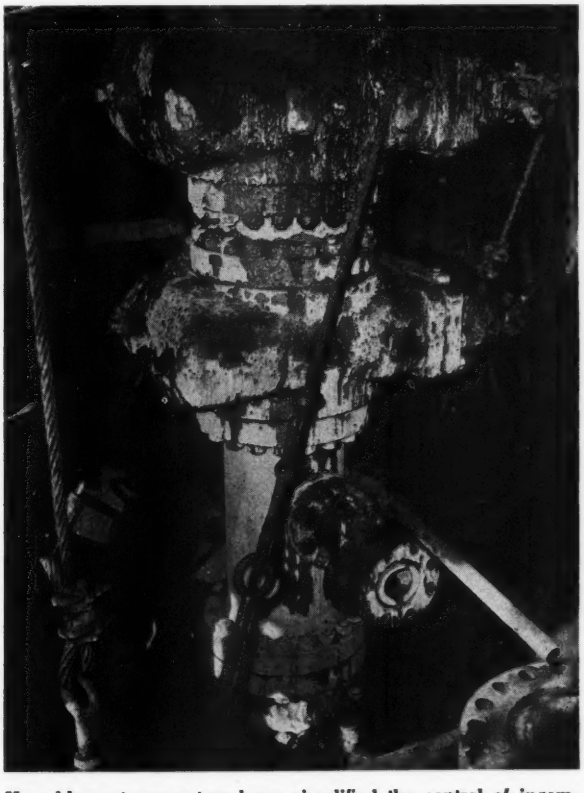
By the same token, it is argued, the big corporation has to maintain sufficient equipment and personnel to handle extensive schedules during times of peak operation. Consequently, when drilling drops off, excessive tools and equipment lie idle, and, hence, depreciate or actually go into obsolescence without having done sufficient work to justify original costs. In the meantime, it becomes obligatory to lay off extra drilling crews and supplementary personnel, which is the one thing above all others that the large petroleum company dislikes to do. The contractor on the other hand is not confined to any one organization or district, and can, indeed, follow in the wake of every fresh discovery. He can, in other words, go wherever the work is, and if he is a good operator can keep his equipment and his men busy.

There is one more interesting angle to this contracting business that is beneficial from an economic point of view, and should simultaneously be pleasing to the scoffers who scream monopoly at every indication of business expansion. That is, it gives workers an opportunity to become owners in a business in which they have experience, and for which, in most instances, before taking over, they already have a custom or clientele that virtually guarantees success. And, make no mistake about it, the big companies that have given up their drilling departments have done so very completely, and by and large have retained no financial interest in the new drilling organization, and show no desire to dictate the manner of their conduct.

Speaking now of equipment and techniques, the industry's failure to locate new reserves in sufficient quantity to satisfy its own estimate of future demand is resulting in the boring of deeper and deeper wells domestically, and the exploration of wider and wider areas of foreign territory. The drilling of deeper wells coincidentally imposes the necessity of using heavier equipment and machinery, and stemming out from this deep drilling urgency are several related developments that are receiving much more than casual attention from engineers and technicians at the present time. They are: (1) controlled vertical drilling; (2) controlled directional drilling; because of the gradually increasing weight requirement, we find designers much concerned with (a) reducing weight and overall dimensions without sacrifice of effectiveness or efficiency; (b) relieving the work elements from excessive stresses and strains, and (c) building into the drilling rigs the highest degree of flexibility and mobility.

Manufacturers are fully resigned to the prospect in the not too distant future of 20,000 feet wells, and are shaping their plans accordingly. In the main, they are striving, and very successfully, too, for more powerful drilling rigs without unduly increased total weight. It is another demonstration of the machine designer's age old search for

Weight indicators are almost as essential as the bit itself in modern scientific operation. The driller watches it as a doctor examines the pulse of a patient, and it seems difficult now to him to believe that he was ever able to carry on without it.



New blowout preventers have simplified the control of incoming wells. This photo shows a blow shut-off assembly under the floor of the derrick. Gushers are not quite so desirable as many uninformed people seem to think.

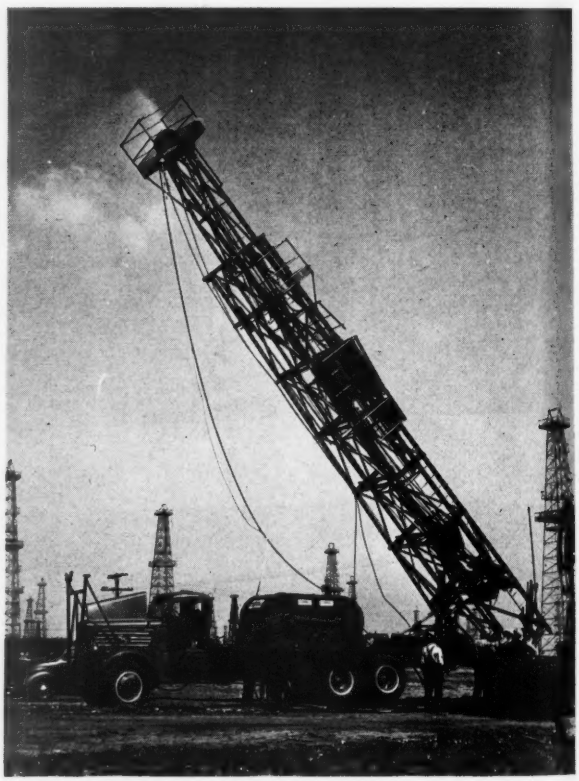
more horse power per unit of weight. It is being accomplished by the substitution of aluminum and other alloys for the heavier weight metals now being used, wherever such substitution is practicable; by the hollowing of shafts, rods, and other parts in which solidity is not essential; and finally by the not so simple expedient of streamlining every piece of equipment that goes into the making of a drilling rig. There have been times in the past when special consideration has been given to the possibility of improving this or that item in the drilling assembly, but there has never been a time when the entire structure and all its appurtenances have been under such close and critical observation as they are at the present moment.

Quite naturally all this concentration of thought and energy has been productive of some genuine progress. The drilling rigs of today compare with those of twenty-five years ago as does the sleek limousine of the present day with the old horseless carriage. The creaking, clanking devices of the early operators have been replaced by a smooth, compact rig that is more than a mere machine—it is a plant, a plant that contains everything essential to its own full and effective operation, and even has built-in quarters for the operators. The engines, drawworks, pumps, boilers, mud screens, controls, etc., are all arranged in ideal relationship to each other, so that the minimum of effort is required from the driller and his crew, and the maximum, of safety accrues to both men and equipment. Machines are compounded so that they can be used in every conceivable combination, and can thus be applied to a wide diversity of purposes.

Despite the tremendous weights that have to be handled by hoisting machinery, the sudden imposition of devastating loads is obviated and increased flexibility is acquired under certain conditions by resort to fluid couplings, hydraulic torque converters, air clutches and other such devices. Hydraulic torque converters permit varied power applications with the corresponding changes in speed and torque that are required during hoisting operations. The changes, incidentally, are made automatically, and with the least possible impact and shock load on the equipment. This same flexibility makes the hydraulic torque converter valuable in fishing, swabbing, and many other operations. There is now also available a combination torque converter and hydraulic coupling that incorporates the advantages of both. When conditions are right this device accomplishes highly satisfactory results with the minimum of effort. It presents an infinitely variable range of speed and torque ratios, the selection of the most effective torque multiplication being completely automatic. It has no controls, requires no adjustments, and is so simple in design that any mechanic can service it when necessary.

Other surface instruments and machines are playing an important

Looking down on a cementing job. There have been many changes in technique since this practice began, and many types of cement are now used for various operations. Plastics are also finding a useful place in plug backs and other remedial jobs.



Portable drilling rigs now play an important part in petroleum operations. There are many types and models, and the necessity of adapting them to widely varied conditions at home and abroad has been responsible for some revolutionary developments.

part in bringing the drilling art to a high state of technical perfection. Now more than ever the weight indicator is a guide in the control of directional and vertical drilling, as well as a measure of the weight on the lines and the derrick. The modern driller would be hopelessly lost in deep drilling without a weight indicator to direct him away from undesirable inclinations back to the predetermined path of the bit. New types of recent development are a hydraulic unit built in to a deadline anchor which is free to rotate to the required extent. The torque developed by the line pull is transmitted to a hydraulic cylinder, which actuates the hand on the weight indicator. This device gives readings that are independent of atmospheric temperatures or wire line size, and can take care of all contingent conditions from 6 to 12 lines up. Another comparatively recent innovation is an electronic weight indicator that can be fastened to the top of the drill pipe or tubing to determine tension. At the present time it is largely used when setting packers, cement retainers, etc. Then, of course, there are the pressure gauges, tachometers, and a variety of instruments and implements that measure engine and boiler efficiency, and as far as possible take all the guesswork out of the drilling operation. Improved mud pumps, screens and sumps (built-in, if you please) are marks of the general march of progress, and in the installation of every piece of necessary equipment, as already suggested, the aim is always to locate it so that the unit as a whole functions most effectively and with the least strain on equipment and operator.

Below ground equipment has also been subject to interesting, and in some instances quite exciting development. There has recently been introduced to the trade a coring bit that embraces all the features of a standard roller cutter rock bit, but differs in the fact that it takes a continuous core while it drills. The advantage of this bit is that it always contains a core of the last three feet drilled, so that if the operator or geologist has a mind to take a look at the kind of formation being encountered, there is nothing to do but come out of the hole and recover the core. While the bit is drilling, it makes the same amount of hole at the same rate as a regular roller rock bit. As it bites deeper into the earth, the excess of core section beyond the last three feet is discharged through a window located in the side of the collar, and mingles in fragments with the mud stream.

It might be remarked also that a great deal has been done to protect pipe, pipe joints, tools, collars, etc., from the rugged usage to which they are normally subjected. Rubber protectors, corrosion inhibitors, plastic coatings, and resistant materials where they can be used, have helped the good fight in this regard, and there is no relaxation of the effort. Perhaps it would be pertinent to point out here that the research chemist and engineer are no longer confined to their laboratory benches as they used to be. Now, they are to be found in the fields, consulting with the petroleum engineers, the drillers, etc., finding out their problems and lending new talents and resources to their solution. Also, allied in this attack on the enemies of precision and inefficiency are the equipment manufacturers and their technicians, working in concert as they have done for many years, but now with a decidedly broadened scientific outlook.

One of the channels of advance that is perhaps more responsible than any other for the improvement of drilling techniques is that of well surveying. The precision and variety of present day surveying instruments has enabled us to determine with amazing accuracy the angle of inclination of any bore hole at any point in its course, and, if necessary, at the same time to deter-

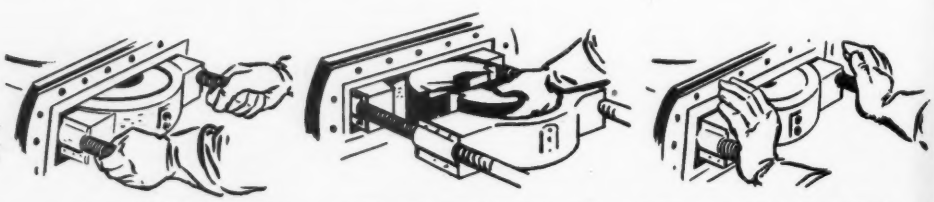
In this shot the crew is starting a new bit in the hole. Bits have also been the subject of intensive research and the factors that cause wear are better understood because of it. This understanding has led to the development of new type bits, and greater footage from established types.

Two Shaffer Type 46 Single Cellar Control Gates with a Shaffer Combination Rotating Blow-Out Preventer and Stripper. (top).

Since the very first gate built many years ago, Shaffer Cellar Control Gates have *always* featured maximum speed and simplicity in changing rams. Simply remove *one* end cover and the *complete* ram assembly is readily accessible for changing the rams. Replace the end cover—and the job is done!

That's something to remember—*from the very first Shaffer Cellar Control Gate ever built,* Shaffer owners have ALWAYS had the advantage of fast, easy ram changes—and this feature is just one of *many* advantages incorporated into Shaffer Gates. So before you buy *any* control gate, be sure to check *all* of the important ways Shaffer Cellar Control Gates—both Single and Double types—bring you years-ahead safety, versatility, installation simplicity and compactness. *Only Shaffer—pioneer of modern control gate equipment—gives such outstanding leadership in* EVERY *vital control gate feature!*

FAST, EASY RAM CHANGE has always been a Shaffer feature!



1 To change Shaffer rams, simply remove one end cover . . .

2 . . . and the *complete* ram assembly—not just *half* of it—is readily accessible.

3 Lift out old rams and install new rams to fit requirements . . .

4 . . . slide the assembly into the body, replace the one end cover . . . and the job is done!

. . . and there are many other unique Shaffer advantages!

In every important feature essential to maximum safety and efficiency, Shaffer Cellar Control Gates provide unique advantages — vital advantages that save money, save space and assure maximum safety in cellar control gate protection. Other examples of Shaffer advantages include . . .

THREE-WAY SPACE SAVING: All Shaffer Cellar Control Gates have long been noted for their unusually small overall *height* as well as their amazing compactness in *length* and *width*. This three-way cellar-saving compactness not only minimizes costly cellar depth requirements and permits lower rig floors, but, in addition, provides more *all-around* space in the cellar and makes possible cleaner, more compact, clutter-free rig hook-ups.

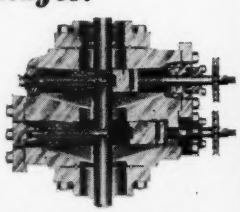
WIDE CHOICE OF POWER DRIVES: Shaffer Gates can be operated with virtually *any* type of power — air, hydraulic, steam or electric — *plus the added safety of manual standby*. This assures maximum versatility, maximum protection at all times!

FOOL-PROOF, NON-CREEPING RAMS: *Positive* mechanical screw feed not only provides quick fool-proof ram operation, but also firmly holds Shaffer rams in whatever position they are set without need for auxiliary locking devices or extra operations of any kind!

SELF-CLEANING DRAINAGE: The entire bottom of Shaffer Gates is sharply sloped toward the well so that any mud and sand that gets into the gate quickly drains back out again. The rams travel on high, narrow guide ribs that afford adequate support, yet prevent mud and sand accumulation from interfering with free ram operation.

PRESSURE-BACKED CLOSING: Shaffer Gates are so designed that well pressure flows up *behind* the rams to assist in the closing operation. After the rams are closed, well pressure below the rams assists in sealing them even tighter as well pressure increases. The higher the well pressure, the tighter Shaffer rams *seal—automatically!*

. . . AND MANY OTHER ADVANTAGES: These are only highlights in the complete story of Shaffer superiority. Send for full information on the multiple ways Shaffer Cellar Control Gates assure greater safety, maximum operating efficiency, simpler and more compact installations!



For maximum compactness the Shaffer Double Cellar Control Gate is ideal. It provides two gates unitized into one body.

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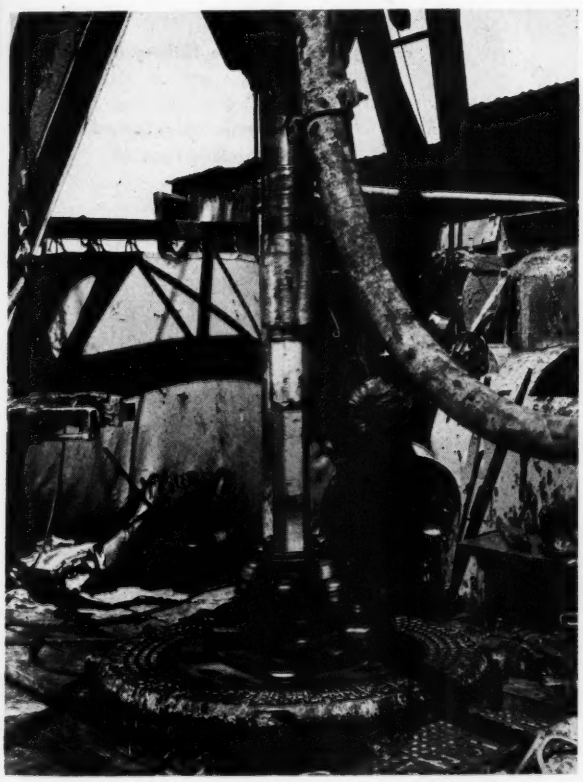
mine the direction of the inclination. These facts have given us a control over the path of the drilling bit that simply wouldn't be possible without them. Vertical drilling, for instance, can be accomplished by the simple expedient of determining the angularity alone at appropriate intervals, and making adjustment of the weight on the bit every time a deviation, even of a small fraction of a degree is indicated. In fact, the success of the control depends on the ability of the operator to keep the deviation from getting beyond the so-called critical angle, which is not at all difficult, although it may be just a few degrees. By taking recordings often enough, the possibility of critical deviation can be avoided, and the vertical course can be maintained, by control of the weight, and an occasional change in the speed of rotation.

Although the preponderant majority of wells are of the vertical type, the process of controlled directional drilling becomes daily more important. There are many conditions that demand the drilling of a slant hole, and operators are becoming very proficient in the process. It is now almost possible for the geologist to pick a specific spot in a formation three miles or so below the surface of the earth, and have the drilling crew "hit it on the nose." In Long Beach, as an example of the increasing need for directional drilling techniques, there are certain residential areas on which drilling is forbidden, but agreements are permitted under which drilling operations may be carried on in less populous adjacent areas, and after going down so far vertically the drill may be whipstocked over to the forbidden residential area. There are sane reasons for the practice of controlled directional drilling, and because there are, the techniques have advanced tremendously with increasing experience and understanding of the problem presented and the mechanics of deflection. Rugged instruments, rugged by virtue of the fact that they are well housed and protected, have been devised to determine simultaneously the angularity of the hole and its direction. Obviously some such measurement is necessary to engineer the course of the bit in a slant drilling project.

The old acid bottle test was rather a crude affair when compared with the precision and delicacy of the prevailing methods. Mostly they are a combination of plumb-bob, sensitized paper or chart, compass, camera, and time mechanism. The time clock is set to trip within a given time, which, of course, means at a specific depth. The plumb bob indicates the angularity. The compass gives the direction, and the camera photographs the chart and the compass at the same time, giving a permanent record for leisurely study. Having determined the course of the bore hole at any given point, the bit may be redirected if desired in a number of ways, and here again equipment manufacturers and field engineers have done a nice bit of cooperative research that has produced real results.

Deflection from immediate trend is contrived by increasing or decreasing the number and length of



Rotary speed is also an important factor in directional drilling. In conjunction with weight on the bit and sufficiently frequent hole surveys, it is significant in both vertical and directional operations.

Drilling goes farther afield daily. The ready aptitude of workers in other countries is evident in this "stabbing" shot, taken on a well in Saudi-Arabia, drilled for the Arabian-American Oil Company.

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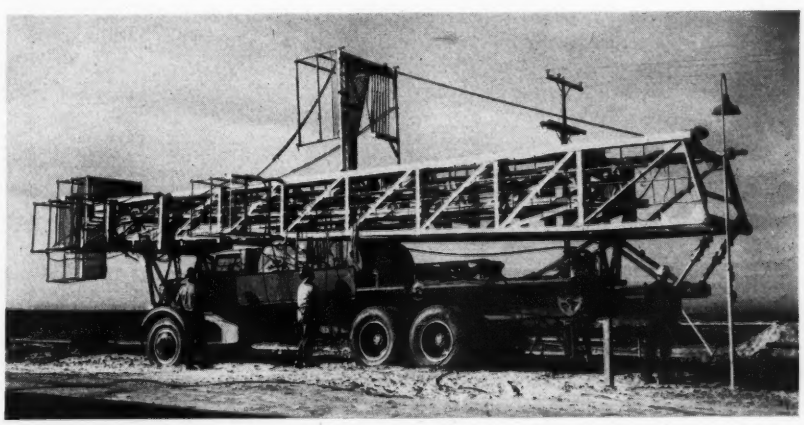
the drill collars; by changing the compression weight on the bit; altering the speed of rotation; and by the use of whipstock, knuckle joint, or other deflecting tool. The techniques involved and the effects that the various departures accomplish are familiar to the experienced driller. With periodic surveys to keep him apprised of every deviation; surface instruments to let him know the load, speed of rotation, and other pertinent information, he is in a position to correlate immediately observable data with later acquired facts. Eventually, thus, he almost instinctively **knows** what is going on ten or fifteen thousand feet below ground. This is what is known as "the feel" of the job. In the conduct of any mechanical operation, the operators in time develop a certain association of physical effects and human reactions. It may be a sudden change of tone in the whine of a rotating member that warns the driller of some change of condition underground. It may be a flutter of the pointer on the weight indicator. It may be any unusual mechanical behavior. Whatever it is, to the driller it has a meaning. Perhaps at the moment he may be unable to extract that meaning and has to wait until the hole has been surveyed for a rational explanation. Eventually, however, in some manner, using all his instruments and their respective measurements, he correlates the effect with the cause. That is how new equipment suggestions are born, and that is how intelligent operators become indispensable in modern business.

When we become involved in a discussion of well surveying, as we must when we broach the subject of controlled drilling of any sort, we can hardly dismiss it without some reference to radio-activity logging, resistivity logging, and other means of determining the character of the formations penetrated by the drill. These data are invaluable both in the future economic production of the well, and in the more immediate necessity of locating and shutting off formation water. They supply confirmation or refutation of geological deductions, and are usually carried on with the cooperation of a representative geologist. As might be expected, here too the rapidly growing accumulation of data has increased and clarified understanding of subsurface conditions in many areas, and, incidentally, has pointed the way to improvements in surveying apparatus and technique that have led to more positive and more precise results.

In the progressive study of subsurface phenomena and the development of methods for the exclusion of water great strides have been made. Improvements in formation testing and logging methods already referred to permit the location of water sources with greater accuracy. A recently perfected calipering device gives an actual log of the diameter of the hole at all depths, and coincidentally permits a more correct calculation of the annular space that has to be plugged for a water shut-off. The invention of equipment for multi-stage cementing without the necessity of coming out of the hole between stages, has expedited and simplified the entire process. Cements themselves have been the subject of much research and are now available with carefully defined and peculiarly appropriate physical properties, so that they can be used satisfactorily for a wide variety of operations under a wide range of conditions. Finally, whereas it was once necessary to employ as many as thirty men to mix and inject the cement in a deep drilling job, the whole business is now quickly and completely done and the cement is more precisely placed by a bulk mixing and injecting unit that is self-contained and self-operative, and can carry out jobs requiring a wide variety of volume-pressure relationships. For special purposes the use of plastics and other substitutes have been undergoing exhaustive tests, so that completions, plug backs, and other related techniques have progressed accordingly.

The function of mud in rotary drilling, originally to flush out cuttings and hold back formation pressure, if any, has been gradually enlarged over the years. It was soon discovered, for instance, that the mud built a film on the wall of the open hole, this, along with its static pressure, minimizing the likelihood of cave-ins. There has been conducted in recent years, and is still going on, an intense study of the constitution of rotary muds and their effects on oil bearing and other sub-surface formations. It has been found that consistency, gravity, alkalinity or acidity, and tendency to separate, are all important considerations in mud evaluation, and these factors have been examined minutely with respect to the tendency of the mud to penetrate producing sands and interfere with the flow. Muds have been tested in great variety under the conditions of temperature and pressure experienced at well bottoms, and in contact with the particular media that are encountered there. They have been loaded with fillers to increase weight, present separation of water, and produce gels; they have been based in oil instead of mud, and it would be difficult to think of any



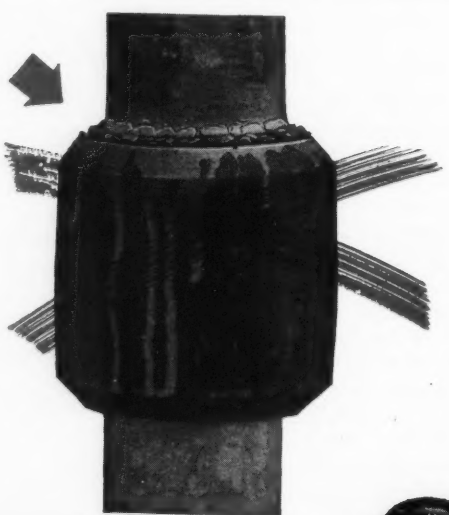
Portable drilling rig in over-the-road position. The necessity of keeping these units down to permissible weight and dimensions to meet highway regulations has stimulated some interesting changes in design.

Why ← mud-free lips make Patterson-Ballagh Protectors *safer!*

If you have watched the gradual change of the shape of Patterson-Ballagh Protectors during the years, you will already know that much work has been done to keep them the "Best Bet Yet!" The most outstanding feature of the Patterson-Ballagh Protector is the lip around the top and bottom. This streamlined lip is the reason why Patterson-Ballagh Protectors so effectively save both drill pipe and casing.

For many years Patterson-Ballagh Protectors were made with a flat end. When the pipe was out of the hole and standing in the derrick, mud or drilling fluid would collect and stand on the flat shoulder formed by the Protector end. If it was corrosive, the fluid would rust a small ring around the pipe. When the pipe went back into the hole, the mud circulation scoured off this ring of rust and left shiny metal to be corroded again when the pipe was out of the hole. Engineers told us that ring-wise breaks in drill pipe surface are the most dangerous causes of twist-off failures. Therefore, Patterson-Ballagh Engineers introduced the lip-feature to prevent dangerous ringing of drill pipe.

Believing design could eliminate "ringing," they carefully studied and worked out the lipped Protector. The lip allows so little fluid to stand on the Protector that corrosive ringing is practically a thing of the past. Patterson-Ballagh Protectors save *both* drill pipe and casing. You'll save drilling expense by seeing your Patterson-Ballagh man now!



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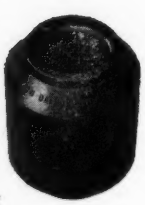

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possible adaptation of constitution or purpose that has not been explored. All of which naturally has whipped the application of mud into another highly specialized procedure that has its own specific experts. They have not only greatly improved the quality of mud and its performance but have in addition searched out its relationship to many production factors, and have so defined the manner of its use that it may aid rather than obstruct the movement of oil from the formation into the bore hole.

Postwar developments in portable drilling rigs are quite revolutionary in some respects. Not only have the manufacturers been striving earnestly to hold down weight and dimensions in the face of the demand for deeper drilling, but they have been adapting the rigs to new and unusual applications. The widening scale of operations into territories that are not accessible by river, railroad, or highway, has required the manufacture of rigs that can be broken down into light compact parcels for transportation by plane. These are so unitized that their reassembly in the field is a simple matter. There seems to be little left in this particular channel but to design a combination drilling rig and helicopter that will fly into any location, and merely need to be anchored to begin work.

Off-shore operations have been responsible for the introduction of another species of portable rig—the amphibian—one that can be used either on land or on the sea. For the latter use it is mounted on a barge, and the big problem is to be sure that there is adequate anchorage, a decision that can only be made after the most careful soundings. In this connection one of the nation's leading physicists has made a study of the effects of water waves and has worked out a formula for determining the ultimate impact or shock that is likely to be imposed under storm conditions in almost any marine location. He claims no great accuracy for it, but at least his system has the virtue of scientific aproach, and is actually being used to assure the safety of certain offshore operations on the Gulf Coast. It will no doubt be improved with further experience, and for the moment represents the first orderly attempt to determine the requisite strength of the structures used in marine drilling.

For operation in swamp lands, there have been developed portable derricks, mounted on tractor beds of the caterpillar type, and it may, indeed, be assumed that for any location one might decide upon, regardless of the environmental conditions, the industry stands ready to provide an effective machine. As a matter of fact, it is quite futile to attempt a discussion in a single article of the drilling business in all its phases. There are so many ramifications that the process becomes endless. This presentation is distinctly superficial in its treatment. It makes no mention, for example, of air slips, power tongs, blowout controls, gun perforators, methods of determining the point of contact and removing stuck pipe, and many other late improvements in the drilling art. It is designed simply to show the unfaltering march of science. The advent of the technician, once frowned upon by industrial reactionaries as an unwarranted intrusion, has now reached the proportions of a wholesale invasion, and any organization that hopes in these modern times to struggle along on haphazard operation, has about as much chance of successful survival as does the proverbial snowball in the ordinarily stipulated region.

Garden Grove Wildcat Starts

Tide Water Associated Oil Co. is starting a new wildcat test known as Martin No. 1 in Sec. 21-5s-10w in the Garden Grove area of Orange County. Southwest of the drill site, General Petroleum drilled in 1940 without production success to slightly below 5950 ft.

East Los Angeles Scene of New Well

E. W. Pauley has joined the development campaign in the East Los Angeles field by staking location for Stewart-Pacific Tube No. 1 near intersection of Smithway and Gaspar streets. The project is a direct offset to Richfield Oil's U. S. Rubber No. 1 in Sec. 16-2s-12w, which is making hole ahead below 7350 ft. Richfield's L. A. River Comm. No. 1-1 is coring at 2250 ft. Vail No. 4 is rigging derrick. General Petroleum's westerly extension test, Industrial No. 1, in Sec. 8-2s-12w, is rigging derrick.

Oak Canyon Try Gives Up

Continental Oil has abandoned at 5250 ft. its Videgain No. 1 wildcat test in Sec. 4-4n-17w in the Oak Canyon area. The Lower Pliocene and Upper Miocene were cored and apparently showed nothing of oil interest.

Alondra Try Digs

British-American Oil Prod. has reached 9100 ft. with Village Comm. No. 1 in Sec. 22-3s-14w in the Alondra area. The contractor, Severns Drilling, made 9100 ft. of hole in 30 days. A slant drilled job, this is faster drilling time than previously scored by other holes in the area. Near Castaic in the Del Valle area, location has been staked for Hall No. 1 in Sec. 16-4n-17w. General Petroleum Alondra Comm. No. 8-1 in Sec. 16-3s-14w in the Alondra area is drilling near 6200 ft.

Beach Well Makes Ready

David Development Co. of Long Beach is preparing to drill a well in the Huntington Beach field at the northwest corner of 22nd and Acacia streets. The drilling will be contracted.

Ramona Area Drill Scene

Crestmont Oil has scheduled two new driling jobs in the Ramona field. The first, U. S. No. 1 in Sec. 13-4n-18w, is ready to start, with George Terry in charge of drilling.

Long Beach Active Area

Shell Oil's Alamitos No. 49-A in Sec. 29-4s-12w, seeking to duplicate deep zone production found in Dolley No. 2, is making hole ahead below 9000 ft. Pacific Western's Hilton & Stanton in the section is drilling at 9650 ft. General Petroleum is digging at 10,200 ft. with LPC No. 4. Jergins Oil, meanwhile, has staked locations for three wells in Sec. 19.

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PB 47-B

Personalities IN THE NEWS

Baker Awards Service Pins

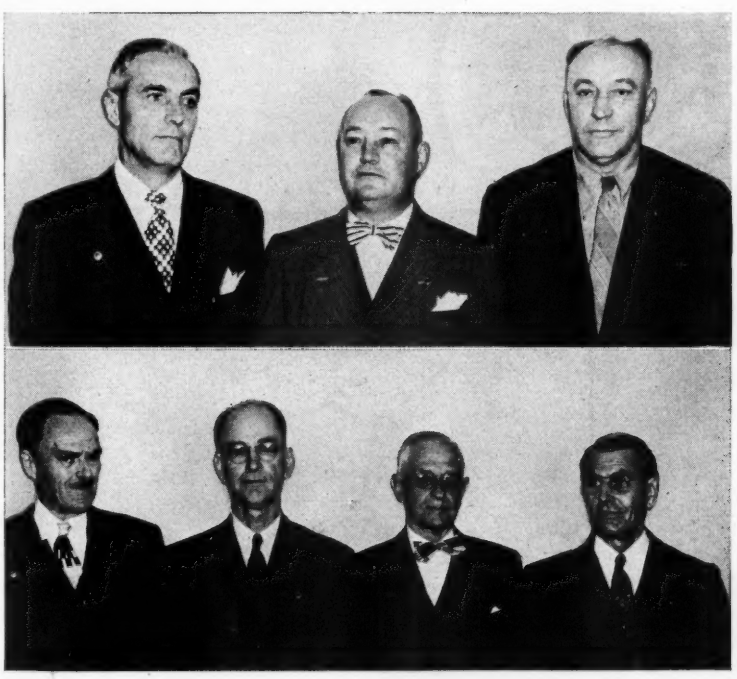
At the Annual Service Pin Banquet of the Pacific Division of Baker Oil Tools, Inc., recently held in Los Angeles, the theme was historical, tracing the growth of the company since its founding in 1913 by R. C. Baker, Sr., still its President. The main office and plant were moved to Los Angeles in 1922, with a total of 12 persons on the payroll. Today there are more than 500 employees, with an additional plant at Houston established in 1936.

The address of Mr. Don E. Gilman, Chairman of District 5 Public Relations Committee of the Oil Industry, on "The Layman's Stake in Public Relations" thoroughly deserved the whole hearted approval evidenced by the gathering of 255 Baker men and women.

The banquet was notable for the award of more service pins than ever before; and was highlighted by the first presentation of pins for a quarter century of service.

Harmonious relations of long standing, between employees and management, augur well for the future advancement of this successful organization.

Charlie West, Signal Oil & Gas Co. dealer in Oakland, is one of the oldest commercial licensed pilots on the Pacific Coast. First licensed at March field in 1927, he has been an airplane mechanic since 1912.



25-Year Service Pins were awarded to (top, left to right) George M. Anderson, California Sales Manager; T. Sutter, Executive Vice President and General Manager; A. Pazdernik, Maintenance Machinist. In the lower group are pictured recipients of 20-Year Service Pins; (left to right) Ralph G. Garretson, T. A. Davenport; C. E. Whitney, Vice President and Manager of the Central Division at Houston; W. A. Heinzman.

Coalinga-Kettleman Chapter Elects 1948 Officers

At the regular meeting of the A.P.I. Chapter of the Coalinga-Kettleman District the following officers and advisory board members were elected for 1948:

W. F. Boice ....Western States Gas Co.
G. D. Carbiener .....K. N. D. A.
Bill Crane .....Howard Supply
Don E. Curry .....K. N. D. A.
H. H. Dievendorff .....Robt. S. Lytle
T. W. Fisher .....The Texas Co.
W. S. Fisher .....Confidence Oil Co.
H. T. L. Frasier ...Coalinga Jr. College
John Higgenbotham ...Standard Oil Co.
C. S. Morris, Chairman ....Tretolite Co.
Bob Tally .....Union Oil Co.
Bill Taylor .....Standard Oil Co.
Cal Townsend,
1st Vice Chairman ..Standard Oil Co.
John Van Deventer,
2nd Vice Chairman .....Robt. S. Lytle
R. W. Walling .....Div. of Oil & Gas
Fred Wilson, Sec.-Treas. .....P. G. & E.
Walt Willms .....Standard Oil Co.
Frank Wilde .....K. N. D. A.
Harold J. Maxwell ....Standard Oil Co.
John Guthrie ..Tide Water Ass. Oil Co.
C. R. West ...M. H. Whittier Co., Ltd.
Chuck Graves .....Amerada Pet. Corp.
Hershel Allen .....General Pet. Corp.
Willis Donohue..General Petrolm. Corp.
R. L. Davis .....The Texas Co.
Earl Grantham Smith ..Coalinga Jr. Coll.
Bill Lyles .....Contractor

At the same meeting Mr. Max Steineke, Chief Geologist for Arabian American Petroleum Co., spoke on the "Arabian Development", and showed motion pictures which were taken by the author.

At this meeting the attendance was 193.

Tommy Williams of Universal Consolidated reports the company's exploratory hole in McClain County, Okla., is only a couple of hundred feet above the objective depth at 12,000 ft. The company has about 5000 acres surrounding the well site and a discovery would rebound with considerable benefit to the California organization, which since its inception has shown a steady and uninterrupted growth.

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Nomads November Meeting

Football and the development of the Amazon Valley in South America were the subjects of an informal talk and a motion picture presented at the regular monthly meeting of the Los Angeles Chapter of Nomads held on Wednesday evening, November 12, 1947. The meeting was conducted by Nomad Bud Landis, who announced that President Bob Eiche and several other members of the chapter were absent in order to attend the Annual A.P.I. Meeting in Chicago.

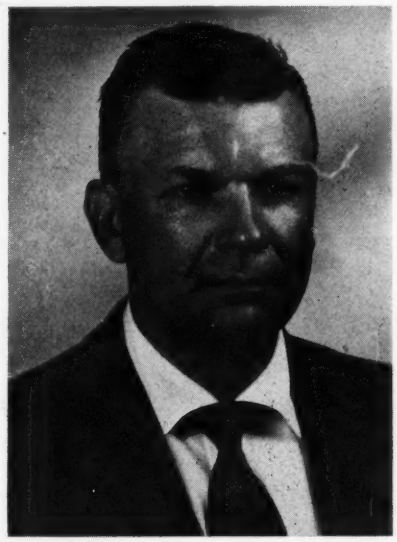
Nomad Earle Boggess introduced the feature speaker, Bob Hall, former University of Southern California All-American football player and track man, who told those present some of the outstanding points or features of the leading football teams of the nation. He also discussed some of the coaching techniques of various university and college coaches and predicted the outcome of some of the season's leading games which are yet to be played.

Following the talk by Mr. Hall, a color motion picture was shown concerning the development of the Amazon Valley in South America, the last and one of the richest frontiers of the Americas. This picture, made available through the courtesy of the Standard Oil Co. of Calif., concerned agricultural, municipal, transportation, and rubber plantation growth now taking place throughout the entire valley.

The foreign guests present at the meeting were introduced by Nomad John Mason.

There were two foreign guests present who failed to get their pictures taken. They were:

Richard C. Reniers, Drilling & Exploration Company; Shih-Yoo Chow, Chinese Petroleum Company.



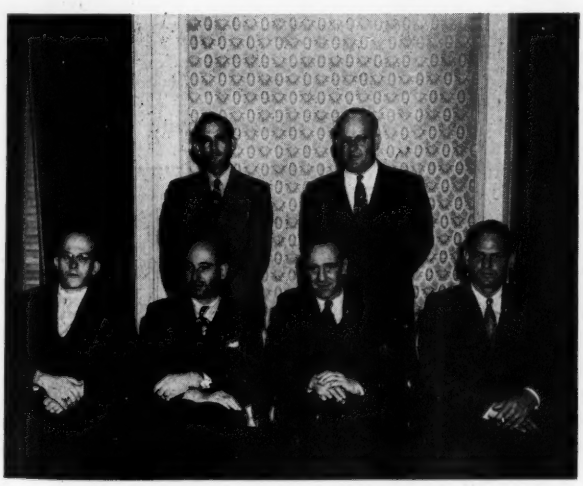
Elmer R. Smith, sales and service engineer for the H. C. Smith Oil Tool Co. throughout South America, has returned from a two months trip to the United States. Previously headquartered at Bogota, Colombia, he has just moved his offices to Caracas, Venezuela.

Don E. Gilman of the Western Oil & Gas Association and Haines Finnell of Union Oil Co. have returned to Los Angeles from the API convention in Chicago. Gilman stopped on the way home at Denver to attend a meeting of the Rocky Mountain Oil and Gas Association.

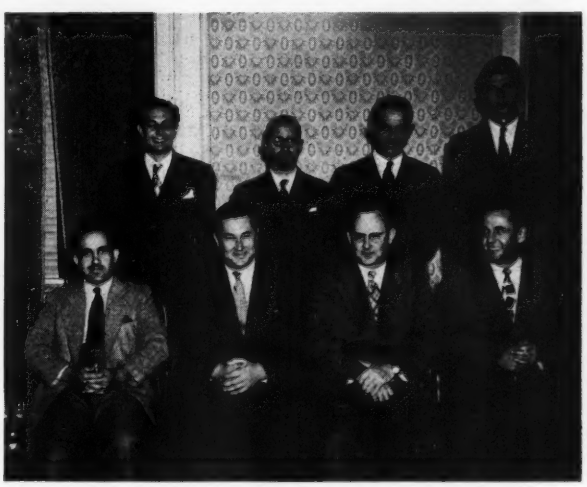
Wes Davis, in charge of public relations for The Texas Co. at Los Angeles, called attention to an entertaining item in Texaco Topics. According to the house organ, a New York columnist reports that residents of Sweden are now sending garments to New York by air and having them dry-cleaned cheaper and quicker than at home.

"Is that news," asks the publication. "During the California gold rush nearly 100 years ago, residents of crowded San Francisco sent their laundry to Hawaii, which gave quicker (and probably cheaper) service than the local wash joints."

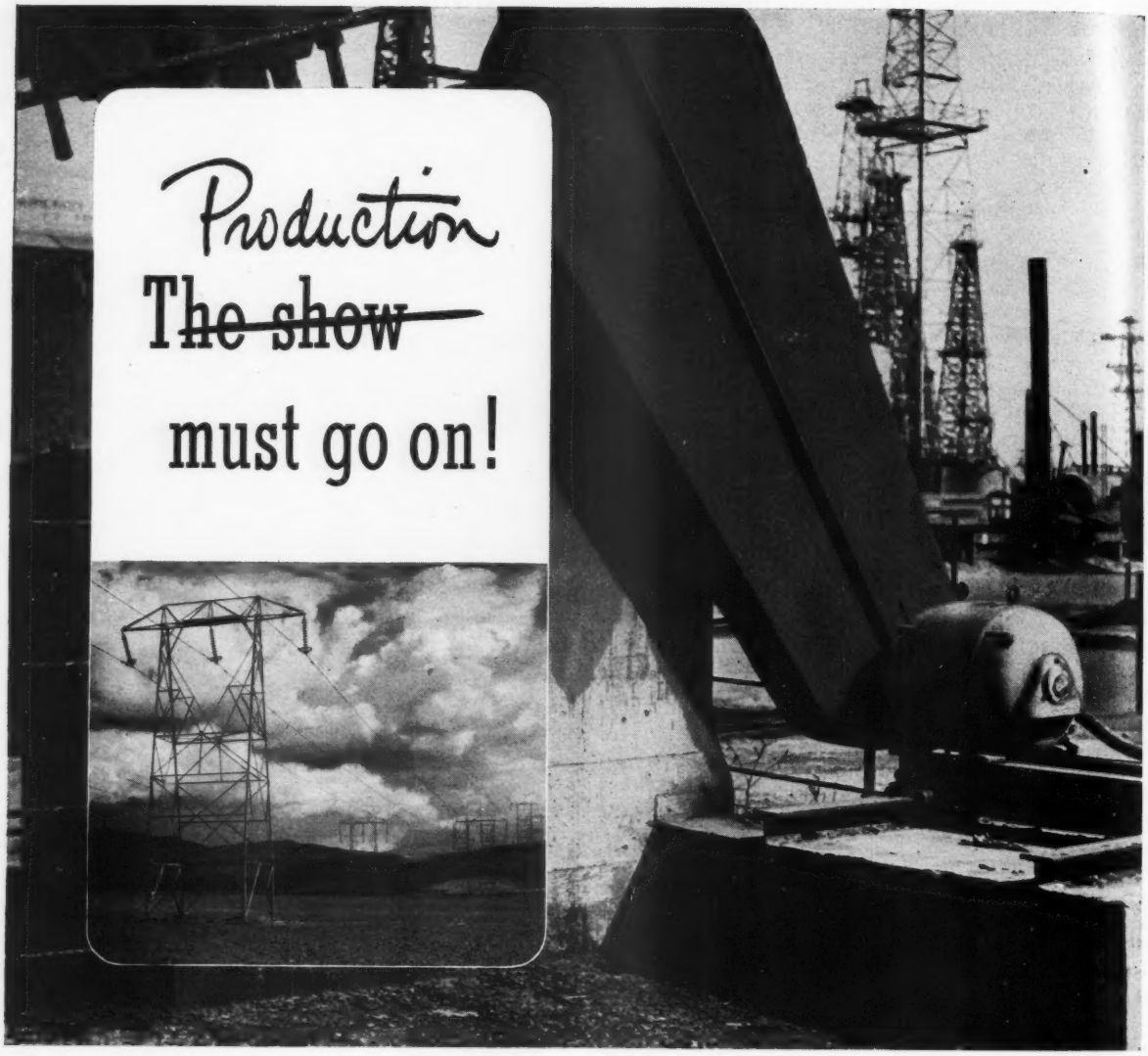
Archie E. Adams, tool truck driver for Shell Oil in the coastal production division at Ventura, has retired after more than 20 years with the company. Archie has 80 acres at Vaughn, Wash., in the Puget Sound region, where he expects to make his home.



Foreign guests at meeting—seated left to right: Charles R. Wilkinson, Shell Oil Company, Colombia; Jean Didier Herrenschmidt, S.N.P.L.M., France; Ted H. Kopp, Iraq Petroleum Company, Ltd.; Walter L. Sears, Iraq Petroleum Company, Ltd.. Standing left to right: R. S. Webb; H. D. Huskey, Iraq Petroleum Company, Ltd.



Foreign guests at meeting—seated left to right: N. Youssef, Shell Oil Company, Egypt; Juan P. Pedretti, Union Oil Company; H. C. Carroll, International Petroleum Co., Ltd.; Russell W. Keener, Petro-Tech. Service Company. Standing left to right: Carl A. Fernandez, Industrial Agencies, Ltd., Trinidad; Marcel Orgeval, S.N.P.L.M., France; George Emerick, Socony Vacuum Company; Benjamin Sttayne, Socony Vacuum of Venezuela.



Show business isn't the only business that depends for success on steady performance, at all times, under any conditions.

Dependability is important in the field and refinery, too. And in the drilling, pumping, piping and refining of oil, electric equipment is truly a trouper. Rain or shine, day or night, year in and year out, electrically driven equipment delivers the goods. Fewer moving parts, and an uninterrupted supply of power provide a maximum of efficient operation with almost no attention required. This is one of the ways in which purchased electricity is helping producers and refiners to get greater production at lower costs.

Throughout Edison territory, the advice of Edison oil field engineers is available without cost or obligation. Consult with them on new and improved electric power services which are proving their worth throughout the industry.

SOUTHERN CALIFORNIA EDISON COMPANY

John Synon, public relations expert for the Western Oil and Gas Association, is on a well-earned vacation. Incidentally, don't be surprised if you hear the Synon family is "threeing" in a few weeks.

Chester C. Ashley of Shell Oil's engineering department in San Francisco is back at work following three years illness. He was stricken in the epidemic of 1944 while working in the Cactus Ordnance Works in Texas. While in a Dallas hospital in 1945, Ashley received his 15-year service emblem from W. P. Gage, vice president. He later was transferred to a hospital at Fresno, where he fought his way back to health.

Rush M. Blodget of the Oil Producers Agency was a principal speaker at the national convention of the American Trucking Association in Portland, Ore.

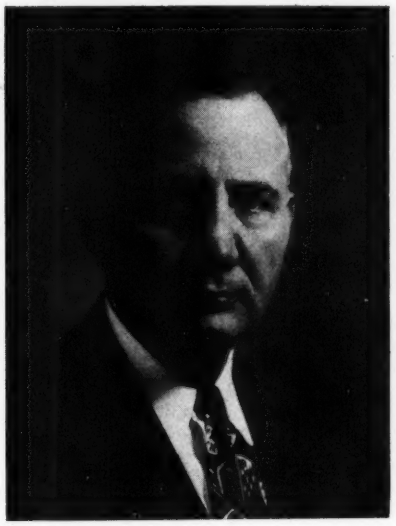
Edwin W. Pauley, president of the Petrol Corp., Democratic national committeeman and currently special assistant to Secretary of the Army Kenneth Royall, may soon be advanced to a post of Cabinet or sub-Cabinet rank.

E. L. Davis, general superintendent of production for Signal Oil & Gas; Carlton Beal, consulting engineer; C. O. Van Note, chief engineer for Long Beach Oil Development; and Dean Bolter of UCLA made up the panel of speakers at the meeting of the Los Angeles Basin chapter of the API in Shell Recreation Hall at Signal Hill.

W. C. Whaley, Barnsdall Oil Co., has been re-elected to the executive committee of the Independent Petroleum Association of America. A. J. Crites, Anchor Oil Co., Maricopa, was named vice president for Northern California. C. A. Johnson, Holly Development Co., Los Angeles, was named vice president for Southern California. Officers were elected at the recent meeting of the independent organization in Oklahoma City. Merle Becker of St. Louis is the new president.

Kerotest Appoints Isaacks To Works Manager Post

Appointment of J. D. Isaacks to the position of Works Manager has been announced by Stanley J. Roush, executive vice-president of Kerotest Manufacturing Co., Pittsburgh, Pa.



J. D. Isaacks

A greatly expanded program in the production of Kerotest pipe line and refinery valves to meet current oil country developments is linked with the appointment of Mr. Isaacks who has been prominent in oil country circles both in California and the Southwest for many years as Division Manager for Kerotest headquartering in Houston, Texas.

Mr. Isaacks has been associated with Kerotest Manufacturing Company for more than fourteen years. He is a member of the A.I.M.E. and American Petroleum Institute and has served on several committees of the A.P.I.

E. L. Civerolo, top man in Texas Co.'s drafting department in Los Angeles, has become a full-fledged civil engineer. He studied at the University of Southern California, UCLA and California Tech to prepare himself as a civil engineer.

Loren L. Hillman, widely known oil producer, has been re-elected a member of the advisory board of the swank Beverly Hills Club in Beverly Hills.

O. R. C. Grow, manager of the harbor division of Southern Counties Gas Co., retired on December 1, after more than 46 years in the gas business on the Pacific Coast. A native of San Bernardino, his association with the gas industry began in that city. He was manager of Southern Counties' operations in the San Pedro and Wilmington areas for 25 years.

A four-point buck and many rainbow trout were scored by Art Handling and Al Henderson of Texaco's Wilmington refinery during their recent encampment at Lake Pillsbury. Bill Atherton, a skilful disciple of Izaak Walton, creeled a mess of pink salmon from the San Joaquin River during his stay there.

Sespe Try A Duster

Kirk Oil Co. has ended the search for oil at 3190 ft. with its Edwards No. 1 in Sec. 27-4n-19w in the Sespe area, Ventura County. In the Sespe Forks area, Republic Operators, Inc., Arundell No. 6-1 is idle at 4010 ft. Location is in Sec. 6.

Cat Canyon Adds Producer

Douglas Oil Co. has added another producing well in the Cat Canyon field. It is Los Flores No. 5 in Sec. 22-9n-33w, which came in from 6240 ft. for 205 barrels a day. No. 16 is drilling below 3400 ft. No. 13 is grading ground.

West Mountain Project Drills

Two miles southwest of the South Mountain field, F. E. Fairfield is drilling at 3147 ft. with Converse-Hill No. 5 in Sec. 23-3n-21w in the West Mountain area. No. 4 is idle at 5181 ft.

Antelope Try Listed

General Petroleum is planning a new exploratory venture about two miles northeast of Seaboard Oil's discovery in the Bacon Hills area. The new project will be tagged Berry No. 11-15 and drill in Sec. 15-28s-20e.

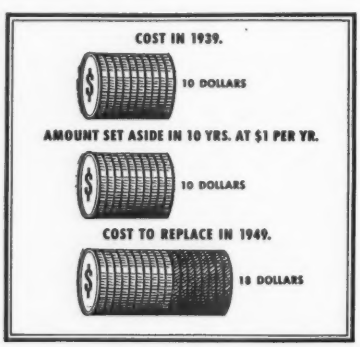
Are profits too high?

1. In the first six months of 1947, Union Oil Company made a total net profit of $8,543,594. On paper, this is just about double what we made during the first six months of '41, '42, '43, '44, '45 and '46. Consequently, when the newspapers headlined the fact, some people began to wonder. Frankly, we're beginning to be bothered about a few things ourselves.

2. For in spite of the fact that there's more money coming in, it doesn't seem to mean very much. To begin with, only $2,801,885 went to the stockholder-owners in dividends. That represented a return to them of 3% on our gross sales. Of the remaining 5¾ million, $5,200,000 had to be spent on day-to-day replacement of equipment. For the money we had set aside for that purpose (some 10½ million) wasn't adequate to meet today's inflated costs.

3. In other words, a corporation's cost of living these days has gone up just as much as an individual's. In 1941, for example, it cost us $12,000 to lay a mile of pipe line. Today it costs $30,000. In 1941 it cost $400 per barrel of capacity to build a piece of refining equipment. Today it costs $1,000. In 1941 we could build a service station for half what it costs us today. And the cost of replacing every barrel of crude oil we sell has tripled.

4. Of course, a certain sum is set aside each year to replace these "tools" and raw materials before profits are figured. But here's the rub: According to accepted accounting practice, and the rules of the Federal tax collector, you must depreciate these things on the "historical" basis—on the basis of what they cost you *when* you acquired them.



5. That means if an item costs you $10—and you expect to wear it out or use it up in 10 years—you're allowed to set aside only $1 *each* year toward replacing it. The fact that it may cost you $18 to replace it *today*—or when the time comes—doesn't make any difference to the tax collector. If you were going to *liquidate* a business, this method of accounting would present an accurate picture of your profits—in dollars.

6. But if you plan to stay in business as we do—and replace your "tools" and raw materials as they run out—today's accounting "profits" aren't always what they seem. In fact, the American people might well take a new look at their accounting methods *and* their Federal tax schedules. For unless our businesses, large and small, can set aside enough to keep improving their "tools," American production can't continue to increase.

UNION OIL COMPANY
OF CALIFORNIA

INCORPORATED IN CALIFORNIA, OCTOBER 17, 1890

This series, sponsored by the people of Union Oil Company, is dedicated to a discussion of how and why American business functions. We hope you'll feel free to send in any suggestions or criticisms you have to offer. Write: The President, Union Oil Company, Union Oil Building, Los Angeles 14, California.

AMERICA'S *FIFTH* FREEDOM IS FREE ENTERPRISE

Bowen Portable and Powered Rotary Table

The Bowen Portable and Powered Rotary Table eliminates need of moving in and rigging-up heavy rotary equipment for light, short-time rotary operations. In one easy to move, frame-mounted unit, the Bowen Portable Rotary Table provides a powerful, sensitive rotary drive for such operations as the internal cutting or milling of casing, drill pipe and tubing, drilling out cement or other obstructions in casing or tubing, backing off sucker rods and tubing, etc. Method of operation is simple and direct and the sturdy portable construction of the unit permits movement from rig to rig on the bed of a light truck or pick-up.

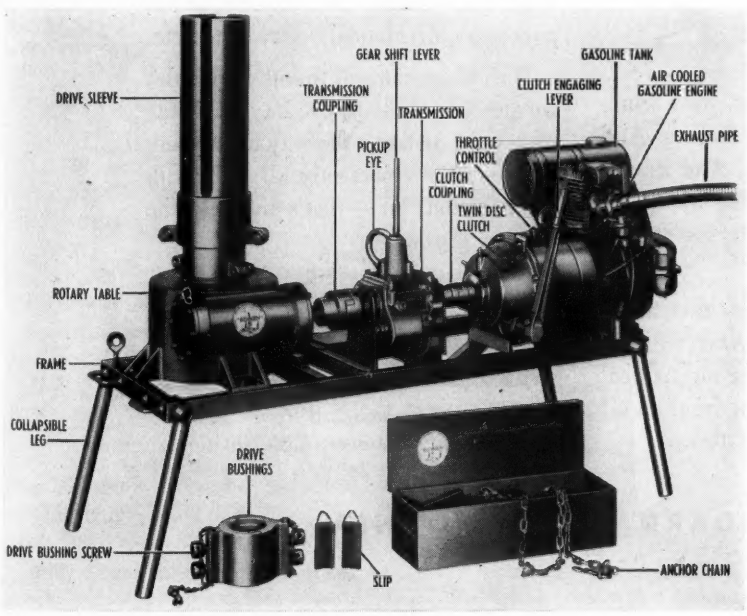
Prime mover for the Bowen Portable Self-Powered Rotary Table is an air cooled gasoline engine mounted in line and connected to a heavy duty Twin Disc Clutch. The Clutch is coupled to a heavy duty Transmission providing three geared speeds forward and one geared speed in reverse. The Transmission is coupled to a worm driven Rotary Table having a slotted Drive Sleeve. The entire unit is mounted on a rugged frame to facilitate moving from rig to rig on the bed of a pick-up or light truck.

Operation

After the drilling or cutting string has been run in to the working depth, the complete Bowen Portable Self-Powered Rotary Table is hoisted by its Pick Up Eye to a height sufficient to slide the slotted Drive Sleeve over the top joint of the working string. Once the pipe is centered in the drive sleeve, the entire unit is lowered to the floor and anchored by chaining opposite corners of the frame to opposing derrick legs. After anchoring the unit, slips of the proper size are installed in the two halves of dove tailed type Drive Bushings and the two halves made up on the string by tightening the Drive Bushing Screws. Slips are available to fit from 3½" O.D. pipe to the smallest sucker rods. The working string is then lowered until the ears of the drive bushings are located within the slots of the Drive Sleeve.

With the ears of the Drive Bushings held in the Drive Sleeve slots, the string can be rotated and lowered under torque the length of the slot in the Drive Sleeve. Continuous operation is possible by loosening the Drive Bushing Screws and again locating the Drive Bushings at the top of the Drive Sleeve. The string may be rotated and elevated under torque by locating the Drive Bushings at the bottom of the drive sleeve slot.

Bowen Portable and Powered Rotary Tables are field-proven and have demonstrated their ability time and again to provide easy, economical operation and precision control of drilling and cutting strings on innumerable actual jobs of all types.



Bowen Portable & Powered Rotary Table

Gordon Greene Introduces Orifice Meter House

The Gordon Z. Greene Company is now manufacturing and distributing a product known as Tilt Back Type Orifice Meter House.

The Meter House protects the orifice meter from damage by the elements and also acts as a safeguard against unauthorized removal of mercury.

The house is fabricated from galvanized, cold roll or aluminum, rigidly held in place by a welded steel angle frame. Space is also provided for charts, ink and a clock key; glass opening in the door is optional.

The Meter House also features a newly designed bracket to facilitate meter repairs. The bracket clamps firmly around the Meter Standard, and is so constructed as to be adjustable to any meter.

Looking Around

By THE OBSERVER

THAT'S THE WAY THE MONEY GOES

Bills! Bills!! Bills!!!

Yes sirree, sir, our experience is just about like yours. We're in the same boat. We keep buying things—and the bills keep rolling in.

In a year's time they amount to $48,000,000. That's the latest figure we've added up from 160,000 purchases in a twelvemonth.

We buy rags (to keep your windshield clean, sir). And flowers. And anchors. And castor oil. And microscopes. And perfume (for fly-spray, madam). And things really too numerous to mention.

We buy Christmas trees that Santa Claus can recognize. And we buy "Christmas trees" that are mechanical gadgets to control the flow from an oil well. We buy all sorts of things.

There's no way to figure exactly how very many western firms benefit by this

buying. But here's a suggestive sidelight. While considerable of our purchasing goes on, month after month, in a routine fashion, even in a slim year calls from salesmen run around 20,000.

The truest thing ever said about a corporation like ours is that it can never save a penny. Every cent it takes in always has a use—for payroll, taxes, purchases, dividends, reserve, etc., etc.

But, if we can sell to lots of people, we are only too happy to buy from lots of people. If that's the way our money goes, why, it's perfectly all right with us. For that, sir—that's the way the country grows.

Listen to "The Standard Hour" Sunday evenings at 8:30 over N.B.C. Stations.

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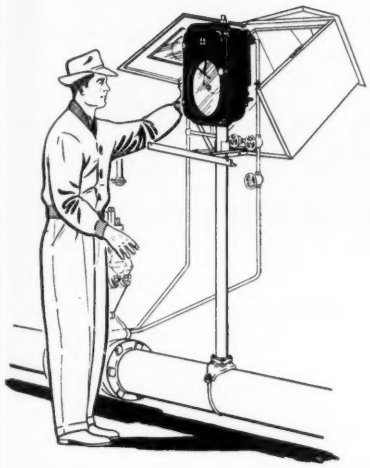

The size of the Meter House is 24 inches in width by 16 inches in depth and a height of 32 inches.

The Gordon Z. Greene Company is located at 2335 E. 8th St., Los Angeles 21, telephone TUcker 9537.

Ramona Well Drills Ahead

In the Ramona area northwest of the Del Valle field, Jack Herley and Paul L. Kelly are drilling at 2400 ft. with Handy No. 4 in Sec. 18-4n-17w. The two areas are separated by a narrow syncline.

Potrero Job Tests

Macco Corp. is testing perforations with washer in its Macco-Beloil Fee No. 2 in Sec. 28-2s-14w in the Potrero area. Total depth is 10,125 ft.

Wilmington Well Spuds

Brookline Oil Co., which has scored several successes at Wilmington, has spudded and is drilling ahead with Parcel No. A-4 in the field on Sec. 5-5s-13w. Present depth is 2500 ft. Cooper and Brain have made location for Banning No. 1.

Palos Verde Well Boring

Lesco Oil Corp. at last reports was still above the 1000-ft. level with its interesting wildcat test known as Sepulveda No. 1 in Sec. 22-5s-14w in the Palos Verdes area.

Olivera Canyon Wildcat Coring

Union Oil is exploring at 5411 ft. with Wickenden No. 1 in Sec. 28-9n-32w in the Olivera Canyon area of Santa Barbara County. McCroskey No. 2 in Sec. 20-9n-32w east of Cat Canyon has been finished at 5560 ft. for an initial output of 208 barrels of 19.8 gravity crude a day.

Cache Slough Gas Try Digs

In the Cache Slough area of Solano County, Amerada Petroleum is making hole ahead at 4808 ft. with Liberty Farms No. 2 in Sec. 7-5n-3e. Electric log was run to 4800 ft.

Kirby Hills Try Abandoned

The Kirby Hills area, opened up by Shell Oil in September, 1944, showed nothing resembling commercial gas production in Bishop Oil Co.'s Bishop-Calaveras-Triguero No. 1 in Sec. 5-3n-1e and the project has been abandoned at 5090 ft.

Butte County Project Flows

Flowing gas at an unestimated rate from the interval open from 2164 to 2170 ft., Superior Oil has completed its Towne No. 1 in Sec. 18-20n-1e in the Chico area of Butte County. Drilled to a bottom of 2257 ft., the well is an offset to a Standard producer.

Bolinas Test Finds No Oil

L. M. Lockhart's ambitious wildcat test about 40 miles from San Francisco in the Bolinas area of Marin County has given up the hunt for new oil at 5123 ft., after an electric log run for a final check. The venture, known as Tevis No. 1, was in Sec. 7-1n-8w.

Orella Test Now Reaming

In the Orella area, Shell Oil is reaming with its Careaga No. 1 in Sec. 36-5n-31w, Santa Barbara County. Depth is 2614 ft. No. 2 continues to stand idle at 1763 ft.

"Quick-Change" Rope Socket Eliminates Line Loss

A new type "QUICK-CHANGE" Rope Socket that eliminates all line loss has been introduced by the Cavins Company of Long Beach, California.

This unusual tool also does away with the necessity of babbitting a rope socket to the sand line at the start of each job.

Simple in construction, it consists of a body, a cap, two liners and a sturdy, tapered pocket thimble. The thimble is so designed as to fit all sizes of the "QUICK-CHANGE" sockets and is permanently babbitted to the line in the conventional "fish hook" manner of securing rope ends.

In working assembly, the liners enclose the thimble and lock around the lifting neck of the body. Slanted shoulders on the exterior of the liners and the interior of the cap provides added retaining safety.

Breakdown tests performed by a recognized standards laboratory resulted in a pull of 13,300 lbs. to separate the sand line from the thimble.

With this extreme yield point, Cavins "QUICK-CHANGE" rope sockets are the most dependable for the average loads imposed.

Although manufactured in a variety of standard sizes from 1¾" O.D. to 2¾" O.D., other sizes may be ordered by specification.

Pioneer Test Digs

On the Pioneer Anticline, Western Gulf is drilling at 6650 ft. in shale with B. & M.-U. S. No. 1 wildcat in Sec. 30-11n-23w. U. S. Case Comm. No. 1 is a location in Sec. 23-11n-23w in the Santiago area.

Field Development

PREPARED FROM CALIFORNIA OIL WORLD NEWS SERVICE

Los Angeles Basin

West Newport Well Swabbing

Republic Operators, Inc., at last reports was conducting a swabbing test of its Newland No. 4 in Sec. 12-6s-11w. The trial was being made of the lower Bolsa, the source of substantial production in the company's previously completed No. 3. The No. 4 was carried to a total depth of 3466 ft. and in so doing found both the A and B zones barren and devoid of oil. Hiawatha Exploration has plans drawn for two more wells to start after the turn of the year. The ground under development is known as the Atha area. Knight Oil Co. has foundation in for No. 1 well near the intersection of 18th and Pomona streets. Standard's Thornburgh No. 2 in Sec. 12-6s-11w is running electric log to bottom at 4750 ft. Amerada Petroleum's Irvine No. 57-7 was okay on water shut off test at 5533 ft.

Orange County Try Logging

Basin Oil is ready to run electric log in its Collins-Wilson Comm. No. 1 in Sec. 33-3s-9w in the Richfield area of Orange County. Present depth is 3826 ft. Comm. No. 3-1 in Sec. 28-2s-14w in the Inglewood area, Los Angeles County, is drilling ahead at 4625 ft. No. 5-1 is a foundation. The company's recently finished No. 2-1 is making 132 barrels of net oil daily.

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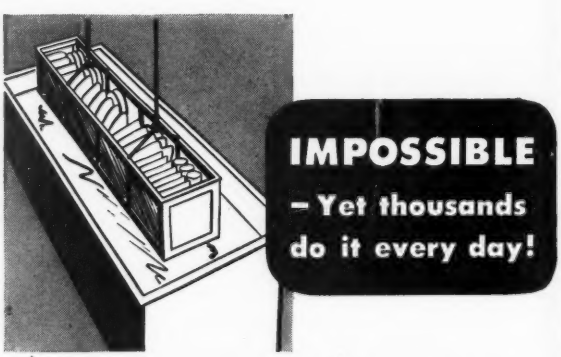

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KELITE pH Control

Beach Test Drills Ahead

Seguro Petroleum Co.'s No. 1 deep test in Sec. 34-5s-11w on the old Union Oil Copeland lease in the Huntington Beach field is drilling below 4700 ft., with objective depth around 8000 ft. Holly Oil controls adjacent properties and would benefit directly by the opening of new deep zones in the area to production.

Newhall Try Goes

California Standard's NL&F No. 5-1 in Sec. 34-4n-16w near Newhall is drilling ahead at 8350 ft. In the Pico Canyon sector, Mutual Development Corp. is making hole in hard shale at 3840 ft. with Sanborn No. 1 in Sec. 6-3n-16w.

Lawndale Try Fishes

A fishing job holds the attention of Seaboard Oil with its Pauley-Seaboard No. 51-20 project in Sec. 20-3s-14w in the Lawndale area. Present depth is 6004 ft.

Inglewood Job Fishing

Redrilled to 7843 ft., Cleveland Oil is fishing with its Machado No. 6-A in Sec. 7-2s-14w in the Inglewood area. Original depth is 7988 ft.

Santa Fe Test Digs

Northwest of the Santa Fe Springs field, Standard is prospecting on down near 9200 ft. with Houghton Comm. No. 1-1 in Sec. 36-2s-12w.

Chino Hills Well Digging

In the Chino Hills of San Bernardino County, Chino Hills Oil Co. is making hole ahead below 750 ft. with No. KB-4 in Sec. 33-2s-8w.

Athens Well Pumps Water

Union Oil has completed its Rosecrans No. 48 in the Athens-Rosecrans area for an initial return of mostly water from a plugged depth of 9980 ft. The hole went originally to 11,884 ft. Wright No. 1 is spot coring at 7800 ft.

Dominguez Test Drills

Morton & Sons' Dominguez Estate Co. No. 1 in Sec. 3-4s-13w in the Dominguez area is drilling at 4025 ft. In the El Toro area El Toro Co. No. 14-1 in Sec. 14-6s-8w is making progress with the drill at 4745 ft.

Val Verde Job Redrills

Finding it mechanically impossible to recover fish, Texas Co. is cleaning out to redrill its Malis No. 1 in Sec. 10-4n-17w in the Val Verde area of Los Angeles County. Total depth is 8363 ft., with plug at 4647 ft.

Athens Test Starts Drill

Northwest of the Athens field, Shell Oil has spudded and is drilling ahead in the shallow formations with Moser Comm. No. 1 in Sec. 12-3s-14w.

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Coastal and Northern District

San Ardo Well Nears Completion

Texas Co. has run liner to complete its Rosenberg No. 1 in Sec. 27-22s-10e in the San Ardo area of Monterey County. Drilled to a total depth of 2378 ft., the hole is plugged at 2094 ft. Casing is cemented at 2080 ft.

The project is the follow-up to the company's Lombardi No. 1 discovery and from all signs to date will produce somewhat on par with the initial test, which made about 130 barrels daily before it was shut in.

Huasna Test Fishes Cones

In the Huasna area of San Luis Obispo County, Danciger Oil & Refining Co. has reached 2657 ft. with its Twitchell No. 1 in Sec. 35-32s-15e and is fishing cones.

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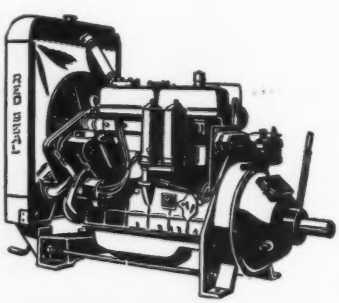

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GM GENERAL MOTORS DIESEL POWER

San Luis Obispo Wildcat Starting

Along the historic trail of the old Spanish Padres, Fred Miller & Associates has made location for an interesting explorer in Sec. 18-27s-11e on the Cherry Ranch near Templeton, San Luis Obispo County. Drill site is on Lot 209.

Casmalia Try Drills

Bell Casmite Oil Co.'s Arellanes No. 3, a deep test in Sec. 13-9n-35w in the Casmalia field, is digging ahead at 2900 ft. The company's Righetti No. 4 in the section has been completed at 1738 ft. for an initial of 204 barrels daily and cutting 30.5 per cent.

Cat Canyon Try Swabbing

North of the Cat Canyon field, General Petroleum is swabbing with its Realty No. 73-10 in Sec. 10-9n-33w, Santa Barbara County. Total depth is 5779 ft. Fullerton No. 1 in Sec. 31-9n-32w is grading ground.

Santa Paula Test Digging

T. M. Gibson was last reported prospecting ahead at 1950 ft. with Portillo No. 1 in Sec. 26-4n-21w near Santa Paula, Ventura County.

Goleta Test Drills Deeper

Honolulu Oil is drilling deeper at 4200 ft. with its Honolulu-Signal-Macco-State No. 309-2 in Sec. 19-4n-28w in the Goleta area, Santa Barbara County.

Zaca Wildcat Drilling Ahead

Tide Water Associated's Chamberlin No. 5 in Sec. 32-8n-31w in the Zaca area in Santa Barbara County is going ahead at 1800 ft. Luton No. 135 is a rigging rotary.

Elwood Try Redrilling

North of the Elwood field, J. W. Rice and Leonard Firestone are redrilling at 3350 ft. with Doty No. 1

test in Sec. 11-4n-29w. Old bottom is 3378 ft. Plug was set at 680 ft. for whipstocking the hole.

Montalvo Area Try Completed

Standard of California has finished McGrath No. 65-3 in Sec. 30-2n-22w in the Montalvo area of Ventura County for 80 barrels of 33 gravity oil a day and 140,000 cubic ft. of gas from a redrilled depth of 9860 ft. The new producer is on the other side of the river from the company's discovery well. Total depth is 9865 ft.

The company's Maxwell No. 1 in Sec. 23-2n-23w is drilling in sand and shale at 15,995 ft. Texas Co., meantime, is prospecting at 11,933 ft. with J. V. No. 1 in Sec. 24. Richfield Oil is ready to run liner in Del Cielo No. 1 in Sec. 30-2n-22w. Bottom is 10,400 ft.

Four Deer Try Drills

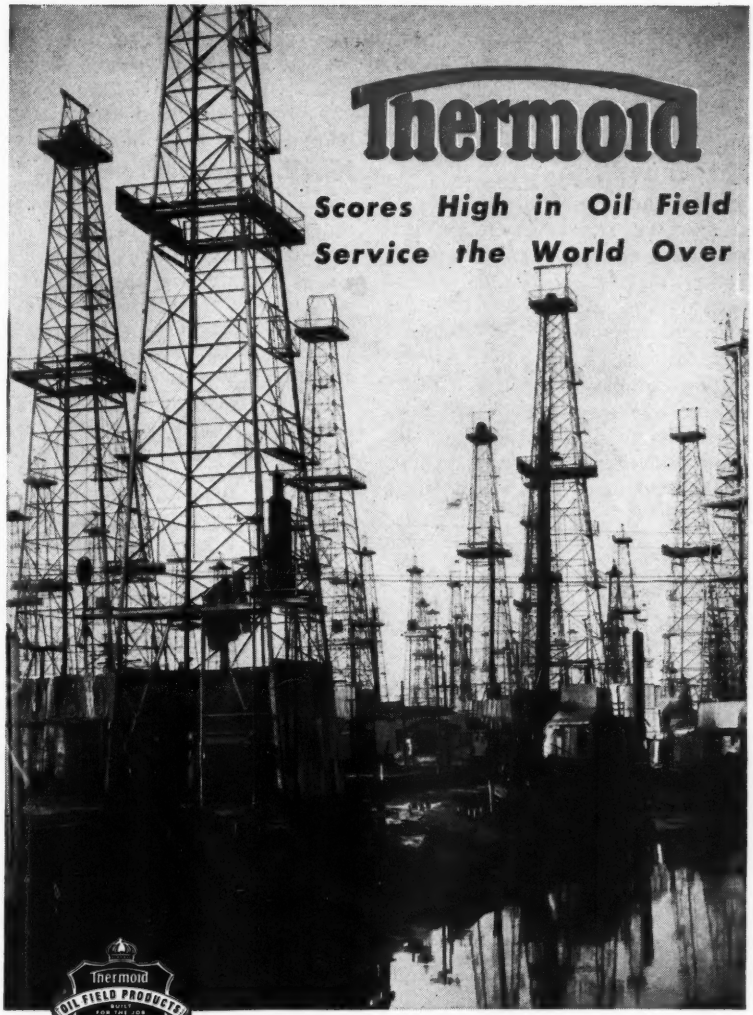
A formation test on Sunray Oil's Los Flores No. 5 in the Four Deer field showed considerable oil in the Miocene at 4680 ft. The well, however, is being carried ahead at 4928 ft. for a look at two deeper zones. Location falls in Sec. 4-8n-33w. Los Flores No. 4 is a foundation.

South Mountain Project Starts

In the South Mountain field east of Santa Paula, Cal State Oil Co. has staked location for Cal State No. 1 in Sec. 13-3-20, Ventura County. Deep erosion in Sespe red beds, make the area one of the most scenic in the state. Company officials are M. Murdock and Sam Brooks.

Pleasant Creek Gas Test Starts

Approximately three miles west of the Winters gas field, Shell Oil has made location for Pleasant Creek Unit No. 1 in Sec. 22-8n-1w, Yolo County. The company's Lambie No. 5 in Sec. 25-4n-1w in the Kirby Hills is digging deeper at 2650 ft. Harper No. 1 in Sec. 14 is grading drill site.



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Fruitvale Try Planned

Under the combined banners of Superior Oil and Independent Exploration a new wildcat test well is starting in Sec. 14-29s-27e in the Fruitvale area. Known as Dougherty No. 88, the venture will explore a short distance from where earlier the two companies drilled without success. LeBow & McNee's KCL-A No. 1, meanwhile is standing with casing cemented on bottom at 4022 ft. The well site is in Sec. 34-29s-27e.

Paloma Well Redrills On

On the north flank of the Paloma structure, General Petroleum is redrilling at 10,400 ft. with its Benco No. 76-28 in Sec. 28-31s-26e. The hole went first to 11,641 ft., with a window later milled for the redrill job.

Semitropic Test Making Progress

West of Wasco and about 30 miles northwest of Bakersfield, Standard of California has spudded and is making hole ahead below 800 ft. with its Unit No. 1-1 gas test in Sec. 5-27s-23e in the Semitropic area. The venture is designed as a Goldman sand test.

Sharktooth Test Scene

Having suspended operations at a depth of 2764 ft. in Alma No. 1 in Sec. 15-28s-28e in the Sharktooth area, Barnsdall Oil Co. has made location for Alma No. 2 in the section. The No. 1 swabbed water.

Coalinga Try Staked

J. Walter Van Atta & Associates of 169 East Hawthorne street, Coalinga, has made location for a new and interesting wildcat test known as Van Atta No. 1 in Sec. 29-20s-13e, between 7 and 8 miles from Coalinga production.

Kern Front Try Coring

St. Anthony Oil Corp.'s St. Anthony No. 1, a deep test in Sec. 18-28s-28e near the Kern Front field, is coring ahead at 5125 ft. in claystone and sand. Gray Vedder was topped at 4046 ft.

Kettleman Hills Venture On Trial

California Standard is ready to initiate water shut off trials on shoe of 7 and 6⅝-in. casing set at 12,072 ft. in its No. 73-30V deep test in Sec. 30-23s-19e in the Middle Dome area of Kettleman Hills. Redrilled depth is 12,080 ft., with old bottom at 12,389 ft. in the Eocene. SF&FL No. 4-2 in Sec. 12-25s-19e in the South Dome area is drilling at 8594 ft.

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Kern Bluff Well Finished

Oceanic Oil and Universal Consolidated are completing another shallow well in the Kern Bluff area. It is Needham-Bloemer No. 26 which is installing pump to draw oil from a finishing depth of 920 ft. The combination already has completed five wells in the area averaging 65 barrels a day each.

Arvin Wildcat Prospects Ahead

British-American Oil Prod. and the Capital Co. are drilling ahead at 5445 ft. in hard shell and shale with Arvin Comm. No. A-47 in Sec. 26-31s-29e. Pacific Western, busy on a fishing job with its P. H. Greer No. 53 in Sec. 9-31s-29e, has cut and pulled pipe to 6253 ft.

Temblor Try Starts Work

Continental Oil is starting work on its wildcat test in Sec. 22-30s-20e in the Temblor area of San Luis Obispo County. The venture flies the banner of British-American-Dodds-Thomas Unit No. 1. In the San Emigdio area of Kern County, the company is drilling Santiago No. 1 in Sec. 8-11n-22w at 5456 ft. KCL No. L-2 in Sec. 8-11n-21w is making hole deeper at 11,650 ft.

Shale Test Programmed

General Petroleum is sponsoring a new explorer in the Shale Hills in Kern County. The try is tagged Berry No. 11-15 and it will explore in Sec. 15-28s-20e. Ninkovitch No. 62-9 in the McKittrick area is drilling at 4985 ft. in sand and shale.

Bacon Hills Test Drills

Seaboard Oil's No. 26-21 test well in Sec. 21-28s-20e in the Bacon Hills area is making hole ahead in shale at a depth of 6250 ft.

Lost Hills Try Deeper

California Standard is drilling on down at 8805 ft. with its SF&FL No. 4-2 in Sec. 12-25s-19e not far from the Paso Robles highway in the Lost Hills area. The company has staked location for Tupman No. 2 in Sec. 22-31s-29e in the Arvin area. It is less than a quarter of a mile east of Standard's Tupman No. 1 which was a duster to 7085 ft.

Fresno County Active District

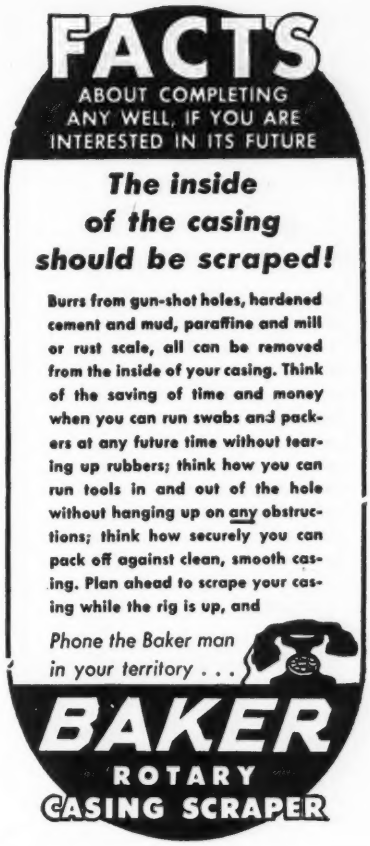
Several areas in Fresno County are the scenes of active drilling operations. D. H. Graham & Associates, headed by Doug Graham, widely known producer, contract driller and supplyman, is reaming No. 2 in Sec. 18-15s-18e in the Raisin City area, with hole bottomed presently at 5210 ft. Sharples Oil Corp. is testing water shut off on casing set at 8142 ft. in its Fleishacker No. 85-1A in Sec. 1-19s-15e in the Coalinga area. Southeast of the Jacalitos field, Standard is reaming Ferguson No. 21-6n in Sec. 6-22s-16e, with bottom at 7420 ft. in gray sand. In the San Joaquin area, Pacific Western continues to test its Waechter No. 24 in Sec. 32-15s-17e. Texas Co.'s Kreyenhagen No. 1 in Sec. 33-22s-16e in the Kreyenhagen Hills is drilling on down below 1350 ft. Amerada Petroleum is drilling in sand and shale at 4275 ft. with Truman No. M-43-6 in Sec. 6-17s-18e in the Helm field.

Maricopa Job Tests

After plugging back from 1620 ft. to 1110 ft., Rocket Petroleum Co. is ready to question the interval of 1042-1110 ft. in its Shell-Fee No. 1 in Sec. 31-32s-24e in th eMaricopa area of San Joaquin Valley.

Wheeler Ridge Outpost Redrills

In the steep hills abounding in the Wheeler Ridge area, Richfield Oil is redrilling its Wheeler Ridge KCL No. C-1 outpost project in Sec. 20-11n-20w at 5210 ft. Original depth was 7003 ft. Near Highway 99 in the Comanche Point area, SP No. 10-1 in Sec. 25-12n-19w is making hole ahead below 4200 ft. The company has started work on its M. & L. No. 78-24 in Sec. 24-31s-25e in the Paloma area.


FACTS
ABOUT COMPLETING ANY WELL, IF YOU ARE INTERESTED IN ITS FUTURE
The inside of the casing should be scraped!
Burrs from gun-shot holes, hardened cement and mud, paraffine and mill or rust scale, all can be removed from the inside of your casing. Think of the saving of time and money when you can run swabs and packers at any future time without tearing up rubbers; think how you can run tools in and out of the hole without hanging up on any obstructions; think how securely you can pack off against clean, smooth casing. Plan ahead to scrape your casing while the rig is up, and
Phone the Baker man in your territory . . .
BAKER
ROTARY
CASING SCRAPER

McKittrick Test Drills

Texas Co.'s Westpet Unit One No. 36-29 in Sec. 29-30s-22e in the McKittrick area last was reported drilling at 2155 ft. Westpet NCT Two No. 14-29 obtained water shutoff on four holes shot at 4572 ft. Total depth is 4645 ft. with pipe set at 4595 ft. Westpet NCT One No. 87-29 is a location.

Mount Poso Test Ready

Ready to start work is Runnels Exploration Company's No. 1 wildcat in Sec. 1-27s-28e in the Mount Poso area of Kern County.

SMITH - EMERY CO.
Since 1904
Oils Tested
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920 Santee St.
Los Angeles

LAUGH THIS OFF!!

Jack and George were arguing as to which had the lazier wife.

"Come home with me," said Jack, and I'll prove that I have."

They arrived at Jack's home and found his wife peeling the potatoes in bed, propped up by pillows.

"That's nothing," said George. "You come home with me."

When they arrived at George's home they found his wife sitting close to a big fire, crying bitterly.

"What's the matter, dear?" asked George.

"I'm getting scorched," said his wife.

"Is there any chance for a young man to start at the bottom and work up in this business?"

"Not much. We're drilling contractors."

Little Johnny's mother had just presented the family with twins, and the household was in a state of excitement. Father beamed with pride as he took Johnny to one side.

"If you'll tell your teacher about it, I'm sure she will give you a day's holiday," he said.

That afternoon Johnny came home radiant. "I don't have to go to school tomorrow," he announced proudly.

"Did you tell your teacher about the twins?" asked his father.

"No, I just told her I had a baby sister. I'm saving the other for next week."

Stern father (sarcastically): "Say, young man, it's past midnight. Do you think you can stay with my daughter all night?"

"Gosh!' exclaimed the innocent young man, "I'll have to telephone mother first."

"And you mean to tell me that in your section of California you have 365 days of sunshine a year?"

"Exactly so, sir, and that's a mighty conservative estimate, too.

Then there's the one about the simp who caught a guy kissing his girl. "Look," he said, "I don't mind you necking my girl, but keep your hands off my fraternity pin."

"I'm losing my punch," he debutante moaned as she departed hastily from the cocktail party.

It's better that your wife find a letter you forgot to mail than one you forgot to burn.

"Dear J. B.: Due to the repercussions of the steel situation, am unable to close the Acme deal. However, I will continue to work night and day until . . . . . "

It isn't so much what a woman says that hurts; it's the number of times she says it.

Sailor: "Hi ya, babe."

She: "Sir, just because you are in uniform, don't think you can make friends on a public street with a strange girl who lives at 242 Jones street, and whose phone number is Main 5687."

Salesman: "What's this on the register?"

Hotel Clerk: "A bug, sir."

Salesman: (laying down pen): "Bad enough you might have bugs in the hotel, but when they come down to see what room you take, that's too much."

Asylum Warden: "So you think you're sane now. If I let you go will you leave liquor and women alone?"

Inmate: "I sure will."

Warden: "You'd better stay—you're still crazy!"

A JENSEN is the RIGHT ANSWER

When choosing pumping units ask yourself these questions:

Is the cost "in line"?

Is the unit of proven dependability?

Will spare parts be available?

Low maintenance costs?

How long has the manufacturer been in business?

Does he stand behind his product?

For 28 years, producers who stop to think before buying answer these and lots of other questions with one word—JENSEN. See your Jensen dealer or write us for the right answer in pumping any well from any depth.

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